

Remarks

The Office Action mailed January 27, 2005 and made final has been carefully reviewed and the foregoing amendments have been made in consequence thereof.

Claims 1-2, 5-17, 20-32 and 35-48 are pending in this application. Claims 1-2, 5-17, 20-32 and 35-48 stand rejected. Claims 3-4, 18-19 and 33-34 have been canceled as explained below.

In accordance with 37 C.F.R. 1.136(a), a three month extension of time is submitted herewith to extend the due date of the response to the Office Action dated January 27, 2005, for the above-identified patent application from April 27, 2005, through and including July 27, 2005. In accordance with 37 C.F.R. 1.17(a)(3), authorization to charge a deposit account in the amount of \$1,020.00 to cover this extension of time request also is submitted herewith.

The rejection of Claims 1-2, 5-11, 16-17, 20-24, 31-32, 35-39 and 46-48 under 35 U.S.C. § 103(a) as being unpatentable over Pang et al. (U.S. Patent No. 6,546,375) ("Pang"), Freeman et al. (U.S. Patent No. 6,249,775) ("Freeman"), Graff (U.S. Patent No. 6,192,347) and Glasserman et al. (U.S. Patent No. 6,381,586) ("Glasserman") is respectfully traversed.

The previous Office Action dated May 20, 2004 advised Applicants that Claims 4, 19 and 34 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Accordingly, Applicants filed an Amendment dated April 12, 2004 that was intended to place the application in condition for allowance by incorporating subject matter indicated as allowable in the Office Action into independent Claims 1, 16 and 31, namely amending Claim 1 to include the recitations of allowable dependent Claim 4 and intervening Claim 3, amending Claim 16 to include the recitations of allowable dependent Claim 19 and intervening Claim 18, and amending Claim 31 to include the recitations of allowable dependent Claim 34 and intervening Claim 33.

However, instead of allowing this case, the Examiner has rejected all of the pending claims in this case based primarily on the two originally cited patents, namely Pang and

Freeman, and two additional cited patents, namely Graff and Glasserman. As explained below, Applicants respectfully submit that no combination of Pang, Freeman, Graff and Glasserman describes or teaches the presently claimed invention. Moreover, as explained below, based on the assertions made by the Examiner in the present Office Action, no combination of Pang, Freeman, Graff and Glasserman can describe or teach the present invention.

Specifically, Applicants respectfully submit that none of Pang, Freeman, Graff, or Glasserman, considered alone or in combination, describe or suggest the claimed invention, as amended. As discussed below, at least one of the differences between the cited references and the present invention is that no combination of Pang, Freeman, Graff, and Glasserman describes or suggests a method for rapid valuation of asset portfolios that includes *valuating assets in a portfolio individually by segmenting the portfolio of assets into three valuation portions*. (Emphasis added.)

Notably, none of Pang, Freeman, Graff, or Glasserman describe, teach or even mention valuating assets in a portfolio individually by segmenting the portfolio of assets into three valuation portions. Because none of Pang, Freeman, Graff, or Glasserman describes or suggests this element of Claim 1, it follows that a combination of Pang, Freeman, Graff, and Glasserman cannot describe or suggest this element. Accordingly, for at least this reason, Claim 1 is submitted as patentable over Pang, Freeman, Graff, and Glasserman.

Moreover, at least one other difference between the cited references and the present invention is that no combination of Pang, Freeman, Graff, and Glasserman describes or suggests a method for rapid valuation of asset portfolios that includes valuating assets in a portfolio individually by segmenting the portfolio of assets into three valuation portions and by:

fully underwriting each asset included within a first portion of the asset portfolio for computing a value for each asset included within the first portion of the asset portfolio including underwriting in a full cash manner to generate a full value table, and underwriting in a partial cash manner to generate a partial value table,

storing in the database asset data acquired from fully underwriting the first portion including the computed value and descriptive attribute variables for each asset included within the first portion,

grouping and underwriting a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the fully underwriting of the first portion and stored in the database, and

statistically inferring a value for each asset included within a third portion of the asset portfolio based on the asset data acquired from the fully underwriting of the first portion and stored in the database. (Emphasis added.)

As acknowledged by the Office Action, neither Pang nor Freeman describe or suggest segmenting the portfolio of assets into three valuation portions and by fully underwriting each asset included within a first portion of the asset portfolio..., grouping and underwriting a sample of assets included within a second portion of the asset portfolio...or statistically inferring a value for each asset included within a third portion of the asset portfolio....

In contrast to what is asserted by the Office Action, Graff does not describe or suggest fully underwriting each asset included within a first portion of the asset portfolio or grouping and underwriting a sample of assets included within a second portion of the asset portfolio as recited in Claim 1. Rather, as explained below, Graff describes a computer system for supporting the securitization of property by its decomposition into at least two components. For example, one component can be an estate for years component and a second component can be a remainder interest. The Graff computer system computes the respective values of the components. Notably, Graff does not describe, teach or even mention segmenting a portfolio of assets into three valuation portions. Moreover, Applicants submit that valuing multiple components of a single piece of property as described in Graff does not describe or teach *fully underwriting each asset included within a first portion of the asset portfolio..., or grouping and underwriting a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the fully underwriting of the first portion and stored in the database.*

Furthermore and in contrast to what is asserted by the Office Action, Glasserman does not describe or suggest statistically inferring a value for each asset included within a third portion of the asset portfolio as recited in Claim 1. Rather, as explained below, Glasserman describes a computer implemented method for pricing derivative securities (e.g., options) that selects an importance sampling (IS) distribution combined with stratified sampling or quasi-Monte Carlo (QMC) sequences. Notably, Glasserman does not describe, teach or even mention segmenting a portfolio of assets into three valuation portions. Moreover, since Glasserman does not describe or suggest fully underwriting a first portion of assets, Glasserman cannot describe or suggest grouping and underwriting a sample of assets included within a second portion of the asset portfolio for valuation purposes *based on the asset data acquired from the fully underwriting of the first portion and stored in the database.*

In addition, based on the assertions made by the Examiner in the present Office Action, no combination of Pang, Freeman, Graff and Glasserman can describe or teach the present invention. The Office Action acknowledges that neither Pang nor Freeman describes or teaches the fully underwriting element, the grouping and sampling element, or the statistically inferring element of Claim 1. Moreover, the Office Action asserts that Graff and Glasserman disclose no more than one of these elements each. Accordingly, Applicants submit that no combination of Pang, Freeman, Graff or Glasserman can describe or teach Claim, as amended herein since no combination of Pang, Freeman, Graff or Glasserman describe or suggest fully underwriting each asset included within a first portion...storing in the database asset data acquired from fully underwriting the first portion including the computed value and descriptive attribute variables for each asset included within the first portion, grouping and underwriting a sample of assets included within a second portion...based on the asset data acquired from the fully underwriting of the first portion and stored in the database, and statistically inferring a value for each asset included within a third portion...based on the asset data acquired from the fully underwriting of the first portion and stored in the database. (Emphasis added.) Accordingly, for at least these reasons, Claim 1 is submitted as patentable over Pang, Freeman, Graff, and Glasserman.

Pang describes an apparatus for and method of determining the price of financial derivatives such as options. One preferred embodiment of the invention employs a discretized partial differential linear complementarity problem (PDLCP) based system to determine the

forward pricing of financial instruments such as vanilla American options. In this embodiment, an optimization problem in the form of a mathematical program with equilibrium constraints (MPEC) is implemented to derive implied volatilities of the assets underlying the subject derivatives. The implied volatilities thus derived are used as inputs in the PDLCP-based system to accurately determine the forward pricing of the subject derivatives.

Freeman describes a method for mortgage and closed end loan portfolio management in the form of an analytic tool designed to improve analysis of past and future performance of loan portfolios. In accordance with one aspect thereof, the invention aggregates loan units into loan vintages, wherein the loans in each vintage originate within a predetermined time interval of one another. The invention compares different vintages to one another in a manner such that the ages of the loans in the different vintages are comparable to one another. An early warning component of the system predicts delinquency rates expected for a portfolio of loans during a forward looking time window. A matrix link component of the invention combines the loan vintage analysis with the early warning component of the invention and predicts the default rate of the loan portfolios at a selected future point in time. The results of the analysis are graphically depicted and/or automatically feedback to provide "yes" or "no" decisions regarding investments in various loan portfolios.

Graff describes a computer system, and methods for making and using it, for manipulating digital electrical signals to produce an illustration of a decomposition of property into separately valued components. The computer system includes a digital electrical computer controlled by a processor. There is a first logic means controlling the processor in manipulating digital electrical signals representing input data to the computer, the input data characterizing at least two components decomposed from the property, the manipulating including transforming the digital electrical signals into modified digital electrical signals representing respective values for each of the components, the values being computed to reflect taxation for the components. Input means is coupled to the computer and operable for converting the input data into the digital electrical signals and communicating the digital electrical signals to the computer. Output means is coupled to receive the modified digital electrical signals from the computer and to converting the modified digital electrical signals representing the respective values into an illustration of the computed respective prices. The property can be real estate or tax-exempt securities.

Glasserman describes a computer implemented method that prices derivative securities (for example, options) by selecting an importance sampling (IS) distribution and combining the chosen IS distribution with stratified sampling. The process consists of the steps of choosing an importance sampling distribution and combining the chosen importance sampling with stratification or Quasi-Monte Carlo (QMC) simulation. In the first step, an importance sampling distribution is chosen. In the second step, the chosen importance sampling is combined with stratification or Quasi-Monte Carlo sequencing. The pricing of many types of securities reduces to one of estimating an expectation of a real-valued function of some random variables.

Claim 1 recites a computer-implemented method for rapid valuation of asset portfolios using a portfolio valuation system, the portfolio valuation system includes a computer coupled to a database, the method includes “valuing assets in a portfolio individually by segmenting the portfolio of assets into three valuation portions and by...fully underwriting each asset included within a first portion of the asset portfolio for computing a value for each asset included within the first portion of the asset portfolio including underwriting in a full cash manner to generate a full value table, and underwriting in a partial cash manner to generate a partial value table...storing in the database asset data acquired from fully underwriting the first portion including the computed value and descriptive attribute variables for each asset included within the first portion...grouping and underwriting a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the fully underwriting of the first portion and stored in the database...and using the computer to statistically infer a value for each asset included within a third portion of the asset portfolio based on the asset data acquired from the fully underwriting of the first portion and stored in the database...listing the asset values individually in relational tables...aggregating to desired groups or tranches for bidding purposes...and optimizing the bid pricing for desired risk/return tolerance.”

None of Pang, Freeman, Graff, or Glasserman, considered alone or in combination, describe or suggest a method for rapid valuation of asset portfolios that includes *valuing assets in a portfolio individually by segmenting the portfolio of assets into three valuation portions.*

Notably, none of Pang, Freeman, Graff, or Glasserman describe, teach or even mention valuating assets in a portfolio individually by segmenting the portfolio of assets into three valuation portions. Because none of Pang, Freeman, Graff, or Glasserman describes or suggests this element of Claim 1, it follows that a combination of Pang, Freeman, Graff, and Glasserman cannot describe or suggest this element. Accordingly, for at least this reason, Claim 1 is submitted as patentable over Pang, Freeman, Graff, and Glasserman.

Moreover, none of Pang, Freeman, Graff, or Glasserman, considered alone or in combination, describe or suggest a method for rapid valuation of asset portfolios that includes valuating assets in a portfolio individually by segmenting the portfolio of assets into three valuation portions and by:

fully underwriting each asset included within a first portion of the asset portfolio for computing a value for each asset included within the first portion of the asset portfolio including underwriting in a full cash manner to generate a full value table, and underwriting in a partial cash manner to generate a partial value table,

storing in the database asset data acquired from fully underwriting the first portion including the computed value and descriptive attribute variables for each asset included within the first portion,

grouping and underwriting a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the fully underwriting of the first portion and stored in the database, and

statistically inferring a value for each asset included within a third portion of the asset portfolio based on the asset data acquired from the fully underwriting of the first portion and stored in the database.

As acknowledged by the Office Action, neither Pang nor Freeman describe or suggest segmenting the portfolio of assets into three valuation portions and by fully underwriting each asset included within a first portion of the asset portfolio..., grouping and underwriting a sample

of assets included within a second portion of the asset portfolio...or statistically inferring a value for each asset included within a third portion of the asset portfolio....

However, the Office Action asserts at page 5 that Graff discloses “decomposing a portfolio into various different components that can be independently valued and underwritten differently.” Applicants traverse this assertion. Rather, Graff actually describes a computer system for supporting the securitization of property by its decomposition into at least two components. For example, one component can be an estate for years component and a second component can be a remainder interest. The Graff computer system computes the respective values of the components. Notably, Graff does not describe, teach or even mention segmenting a portfolio of assets into three valuation portions. Moreover, Applicants respectfully submit that valuing multiple components of a single piece of property as described in Graff does not describe or teach *fully underwriting each asset included within a first portion of the asset portfolio for computing a value for each asset included within the first portion...or grouping and underwriting a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the fully underwriting of the first portion and stored in the database.*

In fact, Applicants submit that Graff does not mention grouping and underwriting a sample of assets, nor does it mention grouping and underwriting a sample of assets based on asset data acquired from fully underwriting a first portion of the portfolio.

Furthermore and in contrast to what is asserted by the Office Action, Glasserman does not describe or suggest statistically inferring a value for each asset included within a third portion of the asset portfolio as recited in Claim 1. Rather, as explained below, Glasserman describes a computer implemented method for pricing derivative securities (e.g., options) that selects an importance sampling (IS) distribution combined with stratified sampling or quasi-Monte Carlo (QMC) sequences. Notably, Glasserman does not describe, teach or even mention segmenting a portfolio of assets into three valuation portions. Moreover, since Glasserman does not describe or suggest fully underwriting a first portion of assets, Glasserman cannot describe or suggest grouping and underwriting a sample of assets included within a second portion of the

asset portfolio for valuation purposes *based on the asset data acquired from the fully underwriting of the first portion and stored in the database.*

Because none of Pang, Freeman, Graff, or Glasserman describe or suggest one or more of the claimed elements, it follows that a combination of Pang, Freeman, Graff, and Glasserman cannot describe or suggest such elements. Accordingly, for at least the reasons set forth above, Claim 1 is submitted as patentable over Pang, Freeman, Graff, and Glasserman.

When the recitations of Claims 2, 5-11 and 46 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2, 5-11 and 46 likewise are patentable over Pang, Freeman, Graff and Glasserman.

Claim 16 recites a portfolio valuation system for rapid valuation of asset portfolios, the system includes “a computer configured as a server and further configured with a database of asset portfolios and to enable valuation process analytics...at least one client system connected to said server through a network, said server configured to...value assets in a portfolio individually...segment the portfolio of assets into three valuation portions...fully underwrite each asset included within a first portion of the asset portfolio for computing a value for each asset included within the first portion including underwriting in a full cash manner to generate a full value table, and underwriting in a partial cash manner to generate a partial value table...store in the database asset data acquired from fully underwriting the first portion including the computed value and descriptive attribute variables for each asset included within the first portion...group and underwrite a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the fully underwriting of the first portion and stored in the database...statistically infer a value for each asset included within a third portion of the asset portfolio based on the asset data acquired from the fully underwriting of the first portion and stored in the database...list the asset values individually in tables...aggregate to desired groups or tranches for bidding purposes...and optimize the bid pricing for desired risk/return tolerance.”

Claim 16, as herein amended, recites a portfolio valuation system for rapid valuation of asset portfolios that includes a server configured to perform steps essentially similar to those

recited in Claim 1. Thus, it is submitted that Claim 16 is patentable over Pang, Freeman, Graff and Glasserman for reasons that correspond to those given with respect to Claim 1. Accordingly, it is further submitted that Claim 16 is patentable over Pang, Freeman, Graff and Glasserman.

For at least the reasons set forth above, Applicants respectfully submit that Claim 16 is patentable over Pang, Freeman, Graff and Glasserman.

Claims 17, 20-24 and 47 depend from independent Claim 16. When the recitations of Claims 17, 20-24 and 47 are considered in combination with the recitations of Claim 16, Applicants submit that dependent Claims 17, 20-24 and 47 likewise are patentable over Pang, Freeman, Graff and Glasserman.

Claim 31 recites a computer for rapid valuation of asset portfolios that includes a database of asset portfolios and configured to enable valuation process analytics, the computer is programmed to “value assets in a portfolio individually...segment the portfolio of assets into three valuation portions...fully underwrite each asset included within a first portion of the asset portfolio for computing a value for each asset included within the first portion including underwriting in a full cash manner to generate a full value table, and underwriting in a partial cash manner to generate a partial value table...store in the database asset data acquired from fully underwriting the first portion including the computed value and descriptive attribute variables for each asset included within the first portion...group and underwrite a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the fully underwriting of the first portion and stored in the database...statistically infer a value for each asset included within a third portion of the asset portfolio based on the asset data acquired from the fully underwriting of the first portion and stored in the database...list the asset values individually in tables...aggregate to desired groups or tranches for bidding purposes...and optimize the bid pricing for desired risk/return tolerance.”

Claim 31, as herein amended, recites a computer for rapid valuation of asset portfolios that is programmed to perform steps essentially similar to those recited in Claim 1. Thus, it is submitted that Claim 31 is patentable over Pang, Freeman, Graff and Glasserman for reasons that

correspond to those given with respect to Claim 1. Accordingly, it is further submitted that Claim 31 is patentable over Pang, Freeman, Graff and Glasserman.

For at least the reasons set forth above, Applicants respectfully submit that Claim 31 is patentable over Pang, Freeman, Graff and Glasserman.

Claims 32, 35-39 and 48 depend from independent Claim 31. When the recitations of Claims 32, 35-39 and 48 are considered in combination with the recitations of Claim 31, Applicants submit that dependent Claims 32, 35-39 and 48 likewise are patentable over Pang, Freeman, Graff and Glasserman.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 1-2, 5-11, 16-17, 20-24, 31-32, 35-39 and 46-48 be withdrawn.

The rejection of Claims 25 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Pang et al. (U.S. Patent No. 6,546,375) (“Pang”) and Freeman et al. (U.S. Patent No. 6,249,775) (“Freeman”) and further in view of Graham L. Goodman et al., *A Gaussian Mixture Model Classifier Using Supervised and Unsupervised Learning*, International Symposium on Signal Processing and Its Applications, ISSPA, Gold Coast, Australia, 25-30 August 1996 (“Goodman”) and Thiesson et al. (U.S. Patent No. 6,408,290) (“Thiesson”) is respectfully traversed.

Pang and Freeman are described above. Goodman describes an algorithm for a maximum likelihood estimation (MLE) classifier, using Gaussian mixture models (GMMs) that incorporate a combination of supervised and unsupervised training. This approach enables the use of data for which no ground truth class labels are available, to improve classifier performance. The novel feature of this paper is described as the use of combining supervised and unsupervised training for a single classifier.

Thiesson describes a construction of mixtures of Bayesian networks and the use of such mixtures of Bayesian networks to perform inferencing. A mixture of Bayesian networks (MBN) consists of plural hypothesis-specific Bayesian networks (HSBNs) having possibly hidden and observed variables. A common external hidden variable is associated with the MBN, but is not

included in any of the HSBNs. The number of HSBNs in the MBN corresponds to the number of states of the common external hidden variable, and each HSBN is based upon the hypothesis that the common external hidden variable is in a corresponding one of those states. In one mode of the invention, the MBN having the highest MBN score is selected for use in performing inferencing. In another mode of the invention, some or all of the MBNs are retained as a collection of MBNs which perform inferencing in parallel, their outputs being weighted in accordance with the corresponding MBN scores and the MBN collection output being the weighted sum of all the MBN outputs. In one application of the invention, collaborative filtering may be performed by defining the observed variables to be choices made among a sample of users and the hidden variables to be the preferences of those users.

Claims 25-26 depend from independent Claim 16. Claim 16 has been recited herein above. None of Pang, Freeman, Goodman or Thiesson, considered alone or in combination, describe or suggest the portfolio valuation system recited in Claim 16. More specifically, no combination of Pang, Freeman, Goodman or Thiesson describe or suggest a server configured to segment the portfolio of assets into three valuation portions, fully underwrite each asset included within a first portion of the asset portfolio for computing a value for each asset included within the first portion, store in the database asset data acquired from fully underwriting the first portion including the computed value and descriptive attribute variables for each asset included within the first portion, group and underwrite a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the fully underwriting of the first portion and stored in the database, and statistically infer a value for each asset included within a third portion of the asset portfolio based on the asset data acquired from the fully underwriting of the first portion and stored in the database.

Rather, Pang describes an apparatus for and method of determining the price of financial derivatives such as options; Freeman describes a method for mortgage and closed end loan portfolio management in the form of an analytic tool designed to improve analysis of past and future performance of loan portfolios; Goodman describes an algorithm for a maximum likelihood estimation (MLE) classifier, using Gaussian mixture models (GMMs) that incorporate a combination of supervised and unsupervised training; and Thiesson describes a construction of mixtures of Bayesian networks and the use of such mixtures of Bayesian networks to perform

inferencing. Accordingly, Applicants submit that Claim 16 is patentable over Pang, Freeman, Goodman and Thiesson.

When the recitations of Claims 25-26 are considered in combination with the recitations of Claim 16, Applicants submit that dependent Claims 25-26 likewise are patentable over Pang, Freeman, Goodman and Thiesson.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 25-26 be withdrawn.

The rejection of Claims 12-15 and 27-30 under 35 U.S.C. § 103(a) as being unpatentable over Pang et al. (U.S. Patent No. 6,546,375) ("Pang") and Freeman et al. (U.S. Patent No. 6,249,775) ("Freeman") and further in view of James C. Bezdek et al., *FCM: The Fuzzy C-Means Clustering Algorithm*, Computers & Geosciences, Vol. 10, No 2-3, pp. 191-203, 1984 ("Bezdek") and Kenneth L. Parkinson et al., *Using Credit Screening to Manage Credit Risk*, Business Credit, vol. 100, nbr. 3, p. 22, March 1998 ("Parkinson") is respectfully traversed.

Pang and Freeman are both describe above. Bezdek describes a FORTRAN-IV coding of the fuzzy c-means clustering program. The FCM program is applicable to a wide variety of geostatistical data analysis problems.

Parkinson describes a credit scoring model for business credit decisions.

Claims 12-15 depend from independent Claim 1. Claim 1 has been recited herein above. None of Pang, Freeman, Bezdek or Parkinson, considered alone or in combination, describe or suggest the method for rapid valuation of asset portfolios recited in Claim 1. More specifically, no combination of Pang, Freeman, Bezdek or Parkinson describes or suggests a method that includes valuating assets in a portfolio individually by segmenting the portfolio of assets into three valuation portions and by: fully underwriting each asset included within a first portion of the asset portfolio, storing in the database asset data acquired from fully underwriting the first portion including the computed value and descriptive attribute variables for each asset included within the first portion, grouping and underwriting a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the

fully underwriting of the first portion and stored in the database, and/or statistically inferring a value for each asset included within a third portion of the asset portfolio based on the asset data acquired from the fully underwriting of the first portion and stored in the database.

Rather, Pang describes an apparatus for and method of determining the price of financial derivatives such as options; Freeman describes a method for mortgage and closed end loan portfolio management in the form of an analytic tool designed to improve analysis of past and future performance of loan portfolios; Bezdek describes a FORTRAN-IV coding of the fuzzy c-means clustering program; and Parkinson describes a credit scoring model for business credit decisions. Accordingly, Applicants submit that Claim 1 is patentable over Pang, Freeman, Bezdek and Parkinson.

When the recitations of Claims 12-15 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 12-15 likewise are patentable over Pang, Freeman, Bezdek and Parkinson.

Claims 27-30 depend from independent Claim 16. Claim 16 has been recited herein above. None of Pang, Freeman, Bezdek or Parkinson, considered alone or in combination, describe or suggest a server configured to segment the portfolio of assets into three valuation portions, fully underwrite each asset included within a first portion of the asset portfolio for computing a value for each asset included within the first portion, store in the database asset data acquired from fully underwriting the first portion including the computed value and descriptive attribute variables for each asset included within the first portion, group and underwrite a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the fully underwriting of the first portion and stored in the database, and statistically infer a value for each asset included within a third portion of the asset portfolio based on the asset data acquired from the fully underwriting of the first portion and stored in the database.

Rather, Pang describes an apparatus for and method of determining the price of financial derivatives such as options; Freeman describes a method for mortgage and closed end loan portfolio management in the form of an analytic tool designed to improve analysis of past and

future performance of loan portfolios; Bezdek describes a FORTRAN-IV coding of the fuzzy c-means clustering program; and Parkinson describes a credit scoring model for business credit decisions. Accordingly, Applicants submit that Claim 16 is patentable over Pang, Freeman, Bezdek and Parkinson.

When the recitations of Claims 27-30 are considered in combination with the recitations of Claim 16, Applicants submit that dependent Claims 27-30 likewise are patentable over Pang, Freeman, Bezdek and Parkinson.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 12-15 and 27-30 be withdrawn.

The rejection of Claims 40 and 41 under 35 U.S.C. § 103(a) as being unpatentable over Pang et al. (U.S. Patent No. 6,546,375) (“Pang”) and Freeman et al. (U.S. Patent No. 6,249,775) (“Freeman”) and further in view of Graham L. Goodman et al., *A Gaussian Mixture Model Classifier Using Supervised and Unsupervised Learning*, International Symposium on Signal Processing and Its Applications, ISSPA, Gold Coast, Australia, 25-30 August 1996 (“Goodman”) and Thiesson et al. (U.S. Patent No. 6,408,290) (“Thiesson”) is respectfully traversed.

Pang, Freeman, Goodman and Thiesson are all described above.

Claims 40-41 depend from independent Claim 31. Claim 31 has been recited herein above. None of Pang, Freeman, Goodman or Thiesson, considered alone or in combination, describe or suggest the computer for rapid valuation of asset portfolios recited in Claim 31. More specifically, none of Pang, Freeman, Goodman or Thiesson, considered alone or in combination, describe or suggest a computer programmed to segment the portfolio of assets into three valuation portions, fully underwrite each asset included within a first portion of the asset portfolio, store in the database asset data acquired from fully underwriting the first portion including the computed value and descriptive attribute variables for each asset included within the first portion, group and underwrite a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the fully underwriting of the first portion and stored in the database, and/or statistically infer a value for

each asset included within a third portion of the asset portfolio based on the asset data acquired from the fully underwriting of the first portion and stored in the database.

Rather, Pang describes an apparatus for and method of determining the price of financial derivatives such as options; Freeman describes a method for mortgage and closed end loan portfolio management in the form of an analytic tool designed to improve analysis of past and future performance of loan portfolios; Goodman describes an algorithm for a maximum likelihood estimation (MLE) classifier, using Gaussian mixture models (GMMs) that incorporate a combination of supervised and unsupervised training; and Thiesson describes a construction of mixtures of Bayesian networks and the use of such mixtures of Bayesian networks to perform inferencing. Accordingly, Applicants submit that Claim 31 is patentable over Pang, Freeman, Goodman and Thiesson.

When the recitations of Claims 40-41 are considered in combination with the recitations of Claim 31, Applicants submit that dependent Claims 40-41 likewise are patentable over Pang, Freeman, Goodman and Thiesson.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 40-41 be withdrawn.

The rejection of Claims 42-45 under 35 U.S.C. § 103(a) as being unpatentable over Pang et al. (U.S. Patent No. 6,546,375) ("Pang") and Freeman et al. (U.S. Patent No. 6,249,775) ("Freeman") and further in view of James C. Bezdek et al., *FCM: The Fuzzy C-Means Clustering Algorithm*, Computers & Geosciences, Vol. 10, No 2-3, pp. 191-203, 1984 ("Bezdek") and Kenneth L. Parkinson et al., *Using Credit Screening to Manage Credit Risk*, Business Credit, vol. 100, nbr. 3, p. 22, March 1998 ("Parkinson") is respectfully traversed.

Pang, Freeman, Bezdek and Parkinson have all been described above.

Claims 42-45 depend from independent Claim 31. Claim 31 has been recited herein above. None of Pang, Freeman, Bezdek or Parkinson, considered alone or in combination, describe or suggest a computer for rapid valuation of asset portfolios as recited in Claim 31. More specifically, none of Pang, Freeman, Bezdek or Parkinson, considered alone or in

combination, describe or suggest a computer for rapid valuation of asset portfolios that is programmed to segment the portfolio of assets into three valuation portions, fully underwrite each asset included within a first portion of the asset portfolio for computing a value for each asset included within the first portion, store in the database asset data acquired from fully underwriting the first portion including the computed value and descriptive attribute variables for each asset included within the first portion, group and underwrite a sample of assets included within a second portion of the asset portfolio for valuation purposes based on the asset data acquired from the fully underwriting of the first portion and stored in the database, and statistically infer a value for each asset included within a third portion of the asset portfolio based on the asset data acquired from the fully underwriting of the first portion and stored in the database.

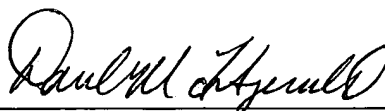
Rather, Pang describes an apparatus for and method of determining the price of financial derivatives such as options; Freeman describes a method for mortgage and closed end loan portfolio management in the form of an analytic tool designed to improve analysis of past and future performance of loan portfolios; Bezdek describes a FORTRAN-IV coding of the fuzzy c-means clustering program; and Parkinson describes a credit scoring model for business credit decisions. Accordingly, Applicants submit that Claim 31 is patentable over Pang, Freeman, Bezdek and Parkinson.

When the recitations of Claims 42-45 are considered in combination with the recitations of Claim 31, Applicants submit that dependent Claims 42-45 likewise are patentable over Pang, Freeman, Bezdek and Parkinson.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 42-45 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,

A handwritten signature in cursive script, appearing to read "Daniel M. Fitzgerald", is written over a horizontal line.

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